

Date: Tue, 11 Oct 94 04:30:28 PDT  
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>  
Errors-To: Ham-Homebrew-Errors@UCSD.Edu  
Reply-To: Ham-Homebrew@UCSD.Edu  
Precedence: List  
Subject: Ham-Homebrew Digest V94 #300  
To: Ham-Homebrew

Ham-Homebrew Digest                      Tue, 11 Oct 94                      Volume 94 : Issue    300

Today's Topics:

    can square wave oscil (4046) be used for vfo/bfo's ?  
        cordless phone reciev (2 msgs)  
does anyone have the phone number for heathkit? (2 msgs)  
    does anyone know anything about the HM-2102 swr meter?  
        FOR SALE : DEAD YAESU FT-747 (FOR PARTS?)  
        Fractional turns on toroids?  
HELP!!! How to Record on a Digital Format "Unattended"?  
        Help with Plotter  
        INDUCTANCE MEASURING  
        Lead-Acid Charger (2 msgs)  
        More on Using 49MHz for Data  
        Need 71488A for Atlas HF  
        Radar Gun (K-Band)  
        Suggestions on Lemon Powered QRP rig  
        Using a 74HC4046 be used for an LO in a receiver?  
    Where can I mailorder parts on the Internet? (2 msgs)

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>  
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Sun, 9 Oct 1994 18:17:07 GMT  
From: gary@ke4zv.atl.ga.us (Gary Coffman)  
Subject: can square wave oscil (4046) be used for vfo/bfo's ?

In article <3786fj\$ki7@ionews.io.org> mike@io.org (Mike Stramba) writes:  
>Can a square wave oscillator, such as the oscillator in a 4046 pll be used  
>either as a bfo or vfo?

>  
>If not, is this because of the many harmonics generated by a square wave?  
>  
>Specifically I'm trying to build a direct conversion receiver using the 4046  
>and a 1596 mixer.

Diode ring mixers work \*best\* with high level squarewave drive. The diodes are shifted through their non-linear region quickly which produces fewer distortion products. The harmonics of a squarewave are all the odd order products starting with the 3rd harmonic of the fundamental. That puts them far enough away that a relatively simple post-mixer filter can handle them.

The 1596, though is an easily crunched mixer. It doesn't like high level drive. You might be better served with a diode ring mixer.

Gary

--  
Gary Coffman KE4ZV                   |     You make it,             | gatech!wa4mei!ke4zv!gary  
Destructive Testing Systems |     we break it.           | emory!kd4nc!ke4zv!gary  
534 Shannon Way            |     Guaranteed!           | gary@ke4zv.atl.ga.us  
Lawrenceville, GA 30244    |                             |

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Date: Sat, 8 Oct 94 23:40:00 -0500  
From: ulis.fleming@woodybbs.com (Ulis Fleming)  
Subject: cordless phone reciev

Fl> Does anyone know where there might be a schematic/parts list, or  
Fl> article, about building a receiver for standard (non-digital) cordless  
Fl> phone transmissions? I think they're somewhere in the 49 Mhz range,  
Fl> identified by 1-10 channels. Anyone Help?  
Fl> Thanks,  
Fl> John Fleming, N9NDH  
Most of the Flemings I know could careless about ham radio, scanners,  
etc. We must be the odd balls in the clan.  
-73 Ulis Fleming WB3LUI

PS-The cordless phones use 46 MHZ for the base unit (both sides heard)  
and 49 MHZ for the handset (one side heard)

... WB3LUI @ WB3V.MD.USA.NA  
\_\_\_ Blue Wave/QWK v2.12

--- PCB15.1/2-GEcho 1.02

\* Origin: BORDERTECH BBS, HAMPSTEAD,MD \*USA\* 410.239.4247 (1:261/1355)

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Date: 9 Oct 1994 16:59:27 -0500  
From: fd@wwa.com (Glen L. Roberts)  
Subject: cordless phone reciev

Ulis Fleming (ulis.fleming@woodybbs.com) wrote:

: Fl> Does anyone know where there might be a schematic/parts list, or  
: Fl> article, about building a receiver for standard (non-digital) cordless  
: Fl> phone transmissions? I think they're somewhere in the 49 Mhz range,  
: Fl> identified by 1-10 channels. Anyone Help?  
: Fl> Thanks,  
: Fl> John Fleming, N9NDH  
: Most of the Flemings I know could careless about ham radio, scanners,  
: etc. We must be the odd balls in the clan.  
: -73 Ulis Fleming WB3LUI

: PS-The cordless phones use 46 MHZ for the base unit (both sides heard)  
: and 49 MHZ for the handset (one side heard)

So, the Digital Wiretap Act outlawed the monitoring of Cordless Phone  
Calls? Same as Cellular Now?

#### SEC. 202. CORDLESS TELEPHONES.

(a) Definitions.--Section 2510 of title 18, United States  
Code, is amended--

(1) in paragraph (1), by striking ", but such term does not  
include" and all that follows through "base unit"; and

(2) in paragraph (12), by striking subparagraph (A) and  
redesignating subparagraphs (B), (C), and (D) as  
subparagraphs (A), (B), and (C), respectively.

(b) Penalty.--Section 2511 of title 18, United States Code,  
is amended--

(1) in subsection (4)(b)(i) by inserting "a cordless  
telephone communication that is transmitted between the  
cordless telephone handset and the base unit," after  
"cellular telephone communication,"; and

(2) in subsection (4)(b)(ii) by inserting "a cordless  
telephone communication that is transmitted between the  
cordless telephone handset and the base unit," after  
"cellular telephone communication,".

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Glen L. Roberts, Editor, Full Disclosure

Host Full Disclosure Live (WWCR 5,065 khz - Sundays 7pm central)  
email fd@sashimi.wwa.com for catalog on privacy & surveillance.  
KEVIN MITNICK DISGUISE KIT: From your fax: (708) 356-9646 doc #903  
email for uuencoded .TIF of T-Shirt Honoring the FBI

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Date: Mon, 10 Oct 1994 16:44:14 GMT  
From: Mike Lyon <mlyon@rahul.net>  
Subject: does anyone have the phone number for heathkit?

i heard that heathkit still sells parts for there products. if anyone out there has the phone number for them it would be appreciated if you could e-mail it to me or just post it.

thank you,  
mlyon@rahul.net

--  
Mike Lyon <mlyon@rahul.net>

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Date: 11 Oct 1994 00:11:47 GMT  
From: aswNS@newhamp.hampshire.edu (Albert S Woodhull)  
Subject: does anyone have the phone number for heathkit?

Mike Lyon (mlyon@rahul.net) wrote:  
: i heard that heathkit still sells parts for there products. if anyone out

The phone number was 616-925-5899 as of July 1994.

73, Al N1AW

Albert S. Woodhull, Hampshire College, Amherst, MA  
awoodhull@hamp.hampshire.edu

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Date: Mon, 10 Oct 1994 01:30:22 GMT  
From: Mike Lyon <mlyon@rahul.net>  
Subject: does anyone know anything about the HM-2102 swr meter?

i recently purchased a heathkit hm-2102 swr meter. i would like to know how to calibrate it and what the knob that says "pull to set swr sens." means. i can't figure out how to measure forward/reflected power with it so basicall i want to figure out how to align it. also if anyone out

there knows what bands this thing will work on that will also be appreciated.

thank you,  
mlyon@rahul.net

--  
Mike Lyon <mlyon@rahul.net>

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Date: Mon, 10 Oct 1994 17:19:46 GMT  
From: rossi@VFL.Paramax.COM (Pete Rossi)  
Subject: FOR SALE : DEAD YAESU FT-747 (FOR PARTS?)

I friend of mine has a dead Yaesu FT-747 HF transceiver that was damaged in shipment (UPS). I have not seen the radio but I was told that the top was slightly dented and the front panel looks like someone removed it with a crowbar. The basic radio carcass looks to be in reasonable shape but the front panel is pretty much a gonner. Yaesu wants over \$400 to repair it.

Fortunately it was insured. UPS paid the claim and returned the dead radio.

Anybody want it? Probably has lots of good parts. Make an offer.  
I will pass the info along.

=====  
Pete Rossi - WA3NNA                      rossi@vfl.paramax.COM

Unisys Corporation - Government Systems Group  
Valley Forge Engineering Center - Paoli, Pennsylvania  
=====

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Date: Sun, 9 Oct 1994 22:26:18 GMT  
From: alanb@hpnmarb.sr.hp.com (Alan Bloom)  
Subject: Fractional turns on toroids?

Mike Czuhajewski (Mike.Czuhajewski@hambbs.wb3ffv.ampr.org) wrote:  
: The June 1994 issue of QST had an article, "Inexpensive Interference  
: Filters", where the author specified fractional turns on toroidal  
: cores. (Specifically, he gave tap points at fractional turns.) ...

Since I was the author of the article, I'll answer the question.

I don't have the article in front of me, but I don't recall listing fractional turns for the main windings. I agree that it is not possible

to achieve a fractional turn: So long as the two wire ends are connected through the rest of the circuit, the turn is effectively completed anyway.

I did list fractional turns for the coil tap points. You can think of the tapped coils as RF autotransformers. The exact tap location definitely affects the impedance ratio.

AL N1AL

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Date: 10 Oct 1994 12:09:00 GMT  
From: Ken Terry <ken\_terry@macmail.eng.gulfaero.com>  
Subject: HELP!!! How to Record on a Digital Format "Unattended"?

I am trying to record unattended data from my icom while I am at work, but regular audio tape does not give me the resolution I need. Either DAT or minidisk was recommended. However, I cannot keep my computer on all day to control the recorder due to afternoon lightening storms (my icom runs on a battery very effeciently). If you have been able to record unattended signals on a digital format, please let me know the secret.

In advance->Thank you very much!!

Ken  
ken\_terry@macmail.eng.gulfaero.com

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Date: 10 Oct 94 19:53:26 GMT  
From: dshalita@rogue.COM (David Shalita)  
Subject: Help with Plotter

I was recently given an old HP-7475A Pen Plotter, to use, if I could, for small homebrew printed circuit boards. This plotter has an HP-IB interface and my PADS shareware IBM PC386 can only drive plotters thru the RS-232C serial port. This plotter was on an old Commodore Business Computer System.

I'm looking for any low cost solutions to my problem. Any suggestions? I don't know if a used IEEE-488 card in my PC386 would solve anything?

Can't put a lot of money into this unit. I need to know if I have:

1. A working PLOTter.

Yes it does complete the self test image.

2. My software(s) can really produce artwork with it.

Thanks and 73 de Dave, W6MIK  
dshalita@rogue.com

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Internet : dshalita@rogue.com  
AMPR.ORG :lp.w6mik.ampr.org [44.16.0.29]  
AMPR.ORG :w6mik.ampr.org [44.16.0.26]  
7833 Cantaloupe Ave. Van Nuys, CA 91402

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Date: 10 Oct 94 08:50:38 GMT  
From: claude@bauv111.bauv.unibw-muenchen.de (Claude Frantz)  
Subject: INDUCTANCE MEASURING

pelt@vt.edu (Ranson J. Pelt) writes:

>QST

>Can anyone give me some advice on a good piece of equipment for measuring  
>inductances. I have an LCR meter (LCR 195) which I purchased from Alpha  
>Elec. several years ago. This meter works great for measuring capacitance  
>but just doesn't get it for measuring small inductances (uh range).

In the HF area, you can use:

- a RF bridge
- a vector impedance meter
- a Q-meter

--

Claude F. (claude@bauv106.bauv.unibw-muenchen.de)

This message may contain opinions which are not shared by my employer.  
The facts can speak for themselves.

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Date: 9 Oct 1994 19:55:46 -0400  
From: beau@enterprise.america.com (J. E. Winburn)  
Subject: Lead-Acid Charger

I have used you idea for about 3 years now and it has worked fine.  
My HF rig draws about 20 amps when in tx. I run my packet station

I have a voltmeter at the desk to monitor the battery condition. I have never seen it below 12V. The battery I use is a deep cycle Gel-cell. The charge is maintained by the "Battery Watch Dog" charger described in the ARRL handbook. It can be left hooked to the battery permanently. It will not overcharge the battery. The apporrox 1.5 amp charge rate seems to be sufficient.

[illegible]

In article <371ejt\$8c5@snoopy.jh.org> ss@JH.Org (Steve Steinberg) writes:  
>I want to build a battery charger for deep-cycle (marine) batteries.

Do you want a battery cahrger or do you want to build one? For a charger you don't need a regulated supply, just something that shuts off at 13.5V or so. YOu can do this with a regular charger from anywhere, by putting an SCR in the output. Connect the anode of the SCR to the old output, the cathode of the SCR to the output, put a 14V zener from the gate to earth and a 5k resistor from the anode to the gate. WHen the battery goes above about 13V the SCR shuts off. Joe Mack NA3T, [mack@ncifcrf.gov](mailto:mack@ncifcrf.gov)

It appears to me that Part 15 ONLY applies to the transmitter part of the setup. Therefore, it is possible to greatly increase the range by using a directional gain antenna.



My proposed solution is this:

- 1) build the transmitter to take advantage of the 100mW limit.
- 2) build a short loaded horizontally polarized dipole.
- 3) build (or buy) a 4 to 5 element Yagi. This should give about 10 db of gain and has the additional benefit of rejecting most of the signals from other users of the band. It is possible to buy a 6M beam and just tune it down to 49 MHz.

Remember that Part 15 devices must ACCEPT all interference they may encounter.

Ray  
WD5IFS  
mack@mails.imed.com

-----  
Date: 10 Oct 94 09:44:42 EDT  
From: landisj@drager.com (Joe Landis - Systems & Network Mgr)  
Subject: Need 71488A for Atlas HF

In article <9410061508001081@takeone.com>, jacques.choquette@takeone.com (Jacques Choquette) writes:

> I recently purchased this fine rig - Atlas 210X - which came with the  
> VOX and digital display external units. While using it for a special  
> event station the display quit. Troubleshooting brought it down to the  
> decoder chips. Problems is none of the electronic shops in town (Ottawa)  
> or RF Parts in California could help me. The set was manufactured in  
> 1977 ans it seems chips that old are hard/impossible to get. Sow  
> ondering if anyone here could have some for sale or give me a place to  
> call to get/order some. Required is quantity (2) 74188A or 74LS188  
> chips. Thank you in advance for helping out, Jacques.  
> Alsl available on packet VE3TSC @ VE3KYT.

Digi key stocks the Natl. 74S188 32x8 bipolar prom for \$1.50. This will work. Of course you're going to have to get the program, find a prom programmer for this one, and burn the prom. Is Atlas still around? I'd try getting this one thru them, if they are. Oh, Digikey is at 1-800-DIGIKEY.

Joe

--

Joe Landis - Systems and Network Manager - North American Drager - Telford, PA  
landisj@drager.com - Ax25: AA3GN@WA3TSW.#EPA.PA.USA.NOAM - ampr: [44.80.8.153]  
Counting the days til deer season! Politically correct sig not available.

-----  
Date: 10 Oct 1994 05:42:28 GMT  
From: co722@cleveland.Freenet.Edu (Mike Wenk)  
Subject: Radar Gun (K-Band)

This is being posted for a friend. I can answer as many questions as I know the answers for, via E-mail.

---  
For Sale

K-Band Radar \*GUN\* unit.

Operates on 24Ghz  
(Some may be tempted to alter the radio to work in the ham-band, this is why this has been cross posted to .homebrew and .equipment)  
Runs off 12VDC (Comes with 12VDC Cigarette Lighter Plug)

This has been advertised on various newsgroups before, but the seller lost their net access along with all prospective purchasers.

(2 or 3 were interested and bidding)

Their addresses have been lost along with the mailbox of the account which was nuked.

If you are interested, simply reply here. I'm helping my friend sell this unit.

\*\*\* Possible Items for Trade or Trade w/Cash \*\*\*

- Mobile scanner with 46mhz, VHF, UHF, 800 including Cel Tel, Etc.
- Dual Band 2m/440 Mobile radio with detachable faceplate.

\*\*\* Asking Price \*\*\*

\$250 Cash (Repair shop lists this unit at \$500)

Purchaser pays all s&h, No COD's.

^

^- Thus purchaser chooses options of shipper, insurance, etc.

"I've used this unit various times to clock different targets. It has come in very handy for a friend who was clocking his high performance car at the track. "

(You could acctually clock cars at a race with this if you bought an easy to carry 12vdc power source)

\*\*\* All interested replies \*\*\*

Direct your replies to me via e-mail at:

br260@po.cwru.edu

If you have problems with the above address, you can send mail to:

root@b63062.cwru.edu (ONLY if the above address does not work)

If sending mail to the root address, make the subject of your mail state: Pass this on to the old 'jbourne'

Thanks!

-----  
Date: 10 Oct 1994 16:38:56 -0400  
From: w4qo@peach.america.net (James C. Stafford)  
Subject: Suggestions on Lemon Powered QRP rig

I posted this in the qrp mailing list the other day and have had some good responses. Any ideas?

-----  
I am helping a high school student - KC4ROW - do some work with various "fruit" and "vegetable" batteries for a science fair project. We both feel that it would enhance the exhibit part of the project to have a Lemon Powered QSO. We can build up a little milli-watt rig such as the fine article on page 18 of QST, March 1992, but what I'm looking for are suggestions on a receiver we can use. Here are some discussion items:

1. A DC receiver that draws less than 10 ma, is there one? I think we can generate 10 ma from a lemon juice battery. We can use an external audio amp on "commerical" power.
2. A crystal set - Ok we could use an "external BFO", IE another transmitter offset by 500 hz hidden nearby. Kinda seems like cheating though, but we could power it from a lemon too.
3. An R-390 powered by an inverter and 3,000,000 lemons for 11 seconds!

Any ideas appreciated. I have quite a large supply of QRP magazines for the past 5 years so you could refer me to one of those. Also, maybe we could have some kind of "Lemon juice" challenge for the farthest QSO on say 40 meters using only two lemons as power.

72/73, Jim Stafford, W4QO

RadioActive Schools -

11395 West Road  
Roswell, GA 30075  
404-993-9500

Packet: w4qo@wa4bro.#atl.ga.usa.na

Using amateur radio as a tool to  
enhance the classroom experience  
in the North Georgia area.

Email: w4qo@america.net

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Date: 11 Oct 94 00:00:17 GMT  
From: ka7oei@uugate.wa7slg.ampr.ORG  
Subject: Using a 74HC4046 be used for an LO in a receiver?

I'm not sure that I would want to use the VCO in a 74HC4046 in a receiver  
if you run it higher than several hundred KHz...

You'll likely have to be very careful to watch the phase noise of the oscillator  
when you get into the MHz area... Much of it may depend on the loop bandwidth  
and its possibly inherent ability to suppress that sort of noise. It all  
depends on your particular application.

If you are over several hundred KHz, you may want to build a varactor-tuned  
VCO and use the phase/frequency detect portion of the chip for that.

One possible lineup is to use a VCO, followed by a driver (to generate  
a squarewave) to dump into, say, a 74HC4059 (as the divide-by-n) and  
use the phase/frequency detector.

This sort of scheme will work well for frequencies up to about 10 MHz or  
so with step sizes of 1 KHz or so. If you wanted smaller steps, you would  
likely need a more complicated scheme... There are actually many possible  
options...

As it turns out, a VCO on the 4046 is not particularly "phase quiet" at  
higher frequencies... If your application is insensitive to phase noise  
(i.e. some sort of simple, wide-bandwidth receiver) then it may be just fine.  
If you need to have low incidental FM and/or narrow bandwidth, then the  
phase noise issue becomes important...

<Clint>

-----  
Date: 7 Oct 1994 23:51:15 GMT  
From: s2202629@np.ac.sg (Teh Aik Wen)  
Subject: Where can I mailorder parts on the Internet?

I'd like to know if there's anywhere on the net I can mailorder for

stuffs in the Radio Shack or Maplin catalog or any other major electronics companies (Are they called that?)

I'd like to pickup a couple of stuffs, and would want to find out how much it'd cost me and the things like that first, and if nothing else, it'd save on time & postage sending it \_there\_ in the first place.

-----  
Date: Mon, 10 Oct 1994 00:06:19 GMT  
From: jeffrey@kahuna.tmc.edu (Jeffrey Herman)  
Subject: Where can I mailorder parts on the Internet?

s2202629@np.ac.sg (Teh Aik Wen) writes:

>I'd like to know if there's anywhere on the net I can mailorder for  
>stuffs in the Radio Shack or Maplin catalog or any other major electronics  
>companies (Are they called that?)  
>  
>I'd like to pickup a couple of stuffs, and would want to find out how  
>much it'd cost me and the things like that first, and if nothing else,  
>it'd save on time & postage sending it \_there\_ in the first place.  
>

Teh - One ham company has internet access; the owner posted a sale notice on r.r.a.misc and got flamed so badly that he set up an email reflector to notify subscribers of upcoming sales, prices, and such. Can't recall what company that was - can someone help out?

I like the idea of shopping via internet. I'm surprised stores haven't set up ftp sites so that you can view their catalog items and prices.

73 from Warm and Sunny Hawaii,  
Jeff NH6IL

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End of Ham-Homebrew Digest V94 #300  
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